

## CLAIMS

## 1. A female connector assembly, comprising

- 5           - a base part comprising one or more conductor channels, each conductor channel having a longitudinal centre axis, a first end, and a second end, and
- a bent resilient conductor comprising first and second portions separated by a bend and having the first portion positioned in a conductor channel, wherein
- 10           said conductor channel is adapted to receive a rod-shaped conductor from a male connector assembly so that the rod-shaped conductor is retained in said conductor channel by a biasing force provided by the bent resilient conductor positioned in said conductor channel,
- 15   wherein the second portion of the bent resilient conductor is displaceable in a track disposed at a surface of the base part upon receiving the rod-shaped conductor in said conductor channel.
2. A female connector according to claim 1, wherein the first and second portions of
- 20   the bent resilient conductor are substantially perpendicular.
3. A female connector according to claim 1, wherein the track is disposed at a surface of the base part being substantially perpendicular to the centre axis of said conductor channel
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4. A female connector according to claim 1, wherein each of the one or more conductor channels hosts at least one bent resilient conductor.
5. A female connector according to claim 1, wherein the track extends in a direction
- 30   substantially transverse to the centre axis of the conductor channel.
6. A female connector according to claim 1, wherein at least a part of the track, in a cross-section, defines a semi-circle.
- 35   7. A female connector according to claim 1, wherein at least a part of the track encircles at least a part of the second portion of the bent resilient conductor displaced in the track.

8. A female connector according to claim 1, further comprising a top part arranged on the base part.

9. A female connector according to claim 8, wherein the base part and the top part, in  
5 combination, defines the track.

10. A female connector according to claim 9, wherein the track is defined by a first recess defined in a surface of the base part and a second recess defined in a surface of the top part.

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11. A female connector according to claim 8, wherein the top part is fixedly attached to the base part.

12. A female connector according to claim 1, wherein a conductor recess is defined in  
15 at least one of the conductor channels.

13. A female connector according to claim 12, wherein the conductor recess extends continuously from the first end of the conductor channel to the second end of the conductor channel.

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14. A female connector according to claim 13, wherein the first portion of the bent resilient connector is adapted to be received in the conductor recess when the second portion is received in the track.

25 15. A female connector according to claim 1, wherein a third portion of the bent resilient conductor is defined between the first portion and the second portion, the third portion being adapted to engage with at least a part of the rod-shaped conductor from the male connector assembly.

30 16. A female connector according to claim 1, further comprising blocking means for blocking at least a part of the track so as to limit the sliding movement of the second portion of the bent resilient conductor when displaced in the track.

17. A female connector according to claim 1, further comprising sealing means  
35 adapted to seal at least one of the conductor channels, the sealing means further being adapted to provide a fluid tight seal.

18. A female connector according to claim 17, wherein the sealing means comprises a flexible membrane having at least one passage adapted to receive the rod-shaped conductor of the male connector, the at least one passage being aligned with a conductor channel.

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19. A female connector according to claim 18, wherein the flexible membrane comprises a material selected from the group consisting of: silicone, butyl-silicone, and rubber material.

10 20. A female connector according to claim 18, wherein the at least one passage defines, in the plane of the membrane, a substantially circular opening.

21. A female connector according to claim 18, wherein the flexible membrane comprises at least one bead.

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22. A female connector according to claim 17, wherein the sealing means is positioned between the base part and a top part.

23. A female connector according to claim 22, wherein the sealing means is fastened  
20 to the base part and/or to the top part using a method selected from the group consisting of: ultrasonic welding, welding, laser welding, gluing, joining by adhesive strips, and joining by heating.

24. A female connector according to claim 22, wherein the top part is fastened to the  
25 base part using a method selected from the group consisting of: snap locking, interface locking, clamping, ultrasonic welding, welding, gluing, and joining by heating.

25. A female connector according to claim 1, having in the range from 3 to 5  
30 conductor channels.

26. A female connector according to claim 1, wherein the volume of the connector is between 2 mm<sup>3</sup> and 10 mm<sup>3</sup>.

35 27. A female connector according to claim 26, wherein the volume of the connector is between 4 mm<sup>3</sup> and 8 mm<sup>3</sup>.

28. A female connector according to claim 27, wherein the volume of the connector is between 5 mm<sup>3</sup> and 7 mm<sup>3</sup>.
29. A female connector according to claim 28, wherein the volume of the connector is  
5 approximately 6 mm<sup>3</sup>.
30. A female connector according to claim 1, wherein the area of a cross-section of at least one of the conductor channels is between 0.1 and 0.3 mm<sup>2</sup>.
- 10 31. A female connector according to claim 30, wherein the area of a cross-section of at least one of the conductor channels is approximately 0.2 mm<sup>2</sup>.
32. A female connector according to claim 1, wherein at least one of the bent resilient conductors comprises a material selected from the group consisting of aluminium,  
15 magnesium, titanium, copper, nickel, zinc, tin, lead, chrome, tungsten, molybdenum, silver, gold, platinum, and any alloy thereof.
33. A female connector according to claim 1, wherein the base part and/or a top part comprises a material selected from the group consisting of elastomers, polymers and  
20 any other plastic material.
34. A female connector according to claim 1, wherein the base part and/or a top part defines, in a plane substantially perpendicular to the centre axis of the conductor channel, a substantially rectangular cross-sectional shape.
- 25 35. A female connector according to claim 1, wherein the base part and/or a top part defines, in a plane substantially perpendicular to the centre axis of the at least one conductor channel, a substantially circular cross-sectional shape.